

## WISSENSCHAFTLICHE KURZMITTEILUNGEN

### Coyote home range size in Durango, Mexico

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Home range sizes of coyotes (*Canis latrans*) are generally known (LAUNDRÉ and KELLER 1984). However, most of the data derive from individuals within the northern parts of this widely distributed species. Nearly nothing has been published on individuals from Mexico, except for reports on feeding habits (DELIBES et al. 1989; SERVÍN and HUXLEY 1991). The aim of this study is to determine home range size of coyotes at the Michilia Biosphere Reserve (MBR). MBR is 420 km<sup>2</sup> in surface, located 154 km southeast of Durango City between 23°51' and 23°30' N latitude, 104°15' and 104°21' W longitude, at approximately 2450 m elevation. Dominant vegetation is oak-pine forest (*Quercus* spp. and *Pinus* spp.), grasslands (*Bouteloua* sp., *Mulhembergia* sp.), and plains mainly covered with *Cistus* sp. (GONZALEZ-ELIZONDO et al. 1993). Climate is subhumid temperate with a 11 °C annual mean temperature and 76 cm annual average precipitation. Rainy season occurs from June to September, dry season from February to May, and occasional snowfall may occur in January.

Snares and foothold traps (Victor No. 3) were used to capture nine (6 male, 3 female) adult coyotes. They were immobilized with a ketamine and xilazine mixture (SERVÍN and HUXLEY 1992), weighed, sexed, and measured. A 150–152 MHz Telonics radiocollar was attached to each animal in good physical condition. All coyotes were released at the capture site a few hours later. In the study area, a total of 75 stations aligned at 0.5 km intervals along roads were used to obtain two or more radiotelemetry bearings for each location. The study was conducted from September of 1986 to December of 1987. Locations were plotted on a 1:10,000 map of the study area. The 95% minimum convex polygon method was used to obtain coyote home range shape and size (MECH 1983). Data samples, related to coyotes' activity in this area, were grouped into four biological seasons: breeding (January 1 to March 15), gestation (March 16 to April 30), pup rearing (May 1 to August 31) and pup independence (September 1 to December 31). For each individual, a minimum of 58 fixes for each season were obtained to estimate individual seasonal home range size. Home range sizes during seasons were compared between males and females by means of a "Student t" test (SOKAL and ROHLF 1981).

A total of 2585 fixes for the 9 radio-collared adult coyotes were obtained over a period of 16 months. Average annual home range size was 9.1 km<sup>2</sup> [n = 9; range 8–18 km<sup>2</sup>; sd = 3.3]. Average annual home range size of males [n = 6; 10.6 km<sup>2</sup>; sd = 2.2] was larger than for females [n = 3; 6.1 km<sup>2</sup>; sd = 2.2] (t = 3.91; df = 7; p < 0.025).

During the breeding season, average home range size for all individuals was 6.1 km<sup>2</sup> [n = 8, range 2.9–12 km<sup>2</sup>]. Males occupied a mean area of 9.0 km<sup>2</sup> [n = 5, range 5–12 km<sup>2</sup>] and females of 3.6 km<sup>2</sup> [n = 3, range 2.9–4 km<sup>2</sup>]. During this season, mean male home range size is larger than for females (t = 2.85; p < 0.025). During the gestation period, the

average for all coyotes is 8.3 km<sup>2</sup> [n = 6, range 2.9–13 km<sup>2</sup>]. Males inhabit a larger area of 9.9 km<sup>2</sup> [n = 4, range 6.5–13 km<sup>2</sup>] compared to 3.2 km<sup>2</sup> [n = 3, range 2.9–3.6 km<sup>2</sup>] for females. However, during pup rearing season, average home range size is larger (12.6 km<sup>2</sup>) than in the other three seasons. Female home range size is 18.4 km<sup>2</sup> which is larger than that of males 11.5 km<sup>2</sup> [n = 5, range 7–17 km<sup>2</sup>]. During pup independence season, the average home range size was 11.7 km<sup>2</sup> [n = 7, range 5–20 km<sup>2</sup>]. Males traveled within a 13.5 km<sup>2</sup> area, whereas, females occupied a 7.3 km<sup>2</sup> area [n = 2, range 5–9.7 km<sup>2</sup>].

The results indicated the average home range size of the coyote in Mexico is smaller (9.1 km<sup>2</sup>) than the average of 22.8 km<sup>2</sup> reported for Canada (MESSIER and BARRETTE 1982), and most studies in temperate [11.3 km<sup>2</sup> to 35.8 km<sup>2</sup>] North America. In contrast, the average home range size in the semiarid zones of Texas was 4.5 km<sup>2</sup> (ANDELT 1985). During the breeding period, adult males patrol their home range and display aggressive behavior to outside coyotes (BEKOFF and WELLS 1986). During the gestation season, male coyotes were observed moving around the denning (rearing) site, transporting prey to the lactating females and newborn pups. During pup rearing season, females are very active. Data from direct observation and radiotracking suggest females travel with their pups across the home range. Meanwhile, males supply prey to feed the pups. During the pup independence season, males had the largest home range size while the females show a smaller home range size than that of the preceding season. Home range size changed in shape and size throughout the year reflecting animals needs and related responses.

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